Correlation between high body temperature and COVID-19 cases

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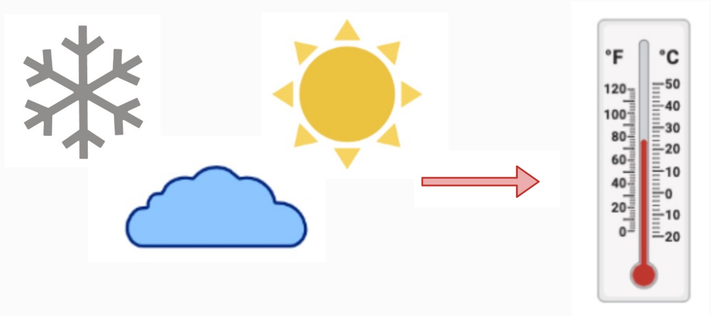
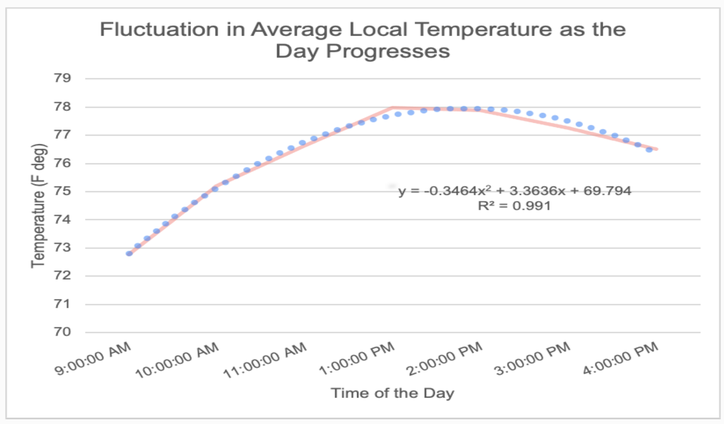
INTRODUCTION:

Technology such as distance thermometers has played an essential role in disease prevention and identification in recent years, especially during the Covid-19 pandemic[1]. The CDC approximates that about 40% of all cases of Covid-19 are asymptomatic[2] lowering the accuracy of this screening method. A study found that infrared thermometers underestimate the temperature of mercury thermometers, and their use is not clinically recommended[3]. Among the adult population, environmental factors (such as weather, and local temperature) play a role in effectively detecting COVID-19 by using distance thermometers. This decreases the likeliness of detecting positive COVID-19 cases despite the rise in confirmed cases.

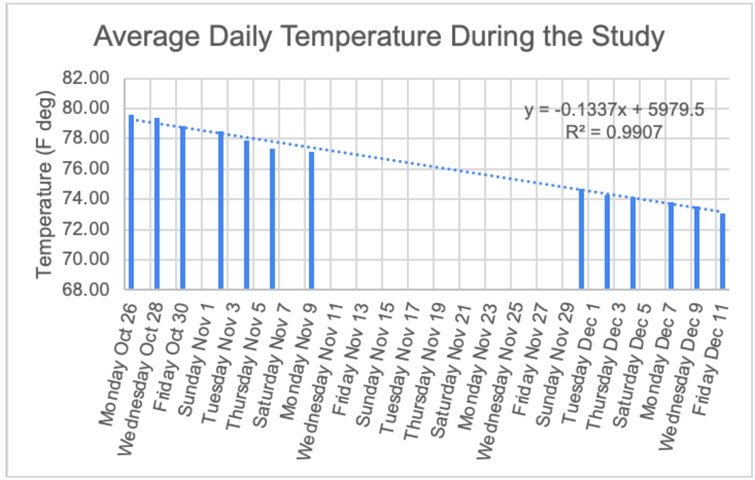


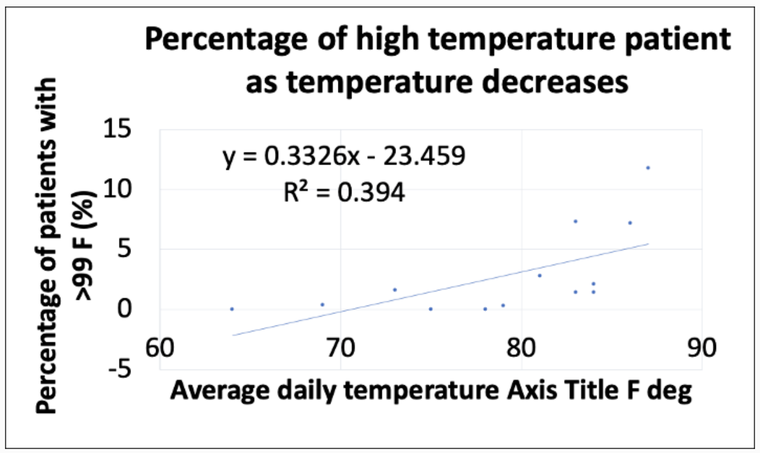
METHODS

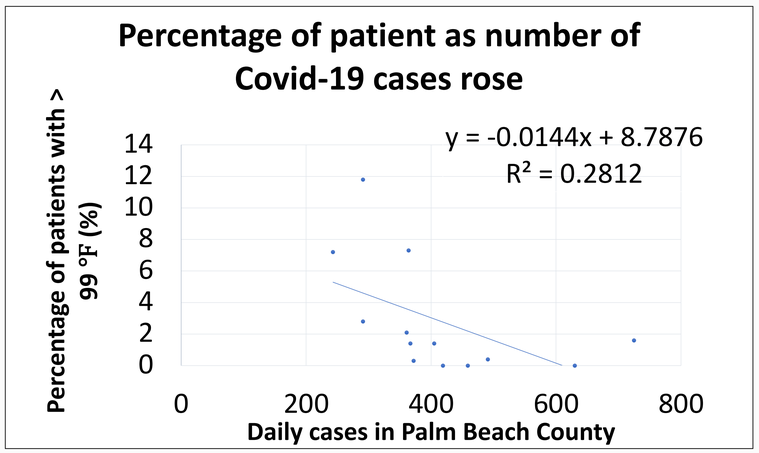
The data sample consists of patients over 18 years of age who attend non-urgent healthcare appointments at Jupiter, Florida. Data was collected three days per week in the months of October and November. Temperatures were taken at the forehead level, maintaining the recommended distance from the skin.



DATA ANALYSIS

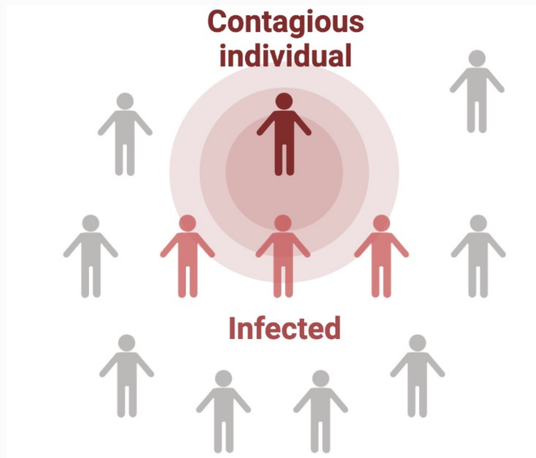


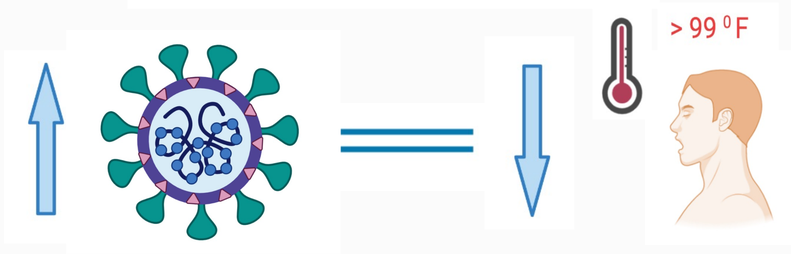




DISCUSSION

We found that as daily cases raised it became less common to find individuals with initial temperature >99 °F. The lower the daily temperature the less likely it was to have patients coming in with high temperatures. This suggests that climate and seasons could affect the usefulness of distance thermometers. The R^2 test indicated that daily temperature better explains the fluctuations compared to daily cases. In conclusion. the use of a distance thermometer did not provide any screening advantages when compared to not using any screening method. Future research might include a larger pool and further investigation into how likely it is to find a patient with fever among all subjects.





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4. Figures adapted from "COVID-19 templates", by BioRender.com (CurrentYear). Retrieved from https://app.biorender.com/biorender-templates